# FAO Training Workshop on "Epidemiology, surveillance, outbreaks investigation and training engineering in Epidemiological field"

**U Choice Hotel, Kunming - China, 29th June-9th July 2009**

**OSRO/RAS/604/USA "Immediate Technical Assistance to Strengthen the Surveillance and Response Capacity for Highly Pathogenic Avian Influenza"**

## Mission Report

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Report N° : 2009/ Septembre 2009

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ACCES AU DOCUMENT :
Service de Documentation du CIRAD
(Bibliothèque de Baillarguet)

ACCES à la REFERENCE du DOCUMENT:
- Libre

MISSION FINANCEE PAR : FAO

REFERENCE :

TITRE : FAO Training Workshop on "Epidemiology, surveillance, outbreaks investigation and training engineering in Epidemiological field"

TYPE D'APPROCHE :
Atelier de formation délocalisé

DATE ET LIEU DE PUBLICATION :
Septembre 2009, Montpellier, France

PAYS OU REGION CONCERNES :
Chine

MOTS CLES : Formation, Epidémiologie
Formation de formateurs

RESUME :
Cet atelier a été organisé par la FAO en collaboration avec le CIRAD et les services vétérinaires chinois. La formation a été divisée en deux parties distinctes :

- la première avait pour objectif de renforcer les capacités des agents des services provinciaux en matière d'épidémiologie des maladies animales et plus particulièrement en matière d'investigation de foyers d'influenza aviaire hautement pathogène. En plus de présentations théoriques et de groupes de travail, la formation reposait sur l'utilisation de deux outils d'apprentissage sur ordinateur : l'un nommé RANEMA, visant à une remise à niveau en épidémiologie des maladies animales et développé par le CIRAD et l'Ecole Nationale Vétérinaire d'Alfort ; l'autre nommé RANEMA FLU, développé par le CIRAD et la FAO, couvrant l'influenza aviaire.
- La deuxième avait pour objectif de former les participants aux outils de l'ingénierie de formation. Au cours de cette semaine les participants ont découverts la méthodologie appliquée à la formation mais ont pu appliqué les méthodes afin de définir les besoins de formations des acteurs les plus importants en épidémiologie et en surveillance.

L'atelier a rassemblé 20 participants des différents échelons administratifs (préfecture, province, central). Il a permis d'améliorer significativement les connaissances de base en épidémiologie des participants et de passer en revue les points capitaux à prendre en comptes lors d'une investigation de foyers. Les participants ont également été formés à l'utilisation d'un logiciel de cartographie simple leur permettant d'illustrer leur rapport.
A l'issue de la deuxième semaine, les formateurs ont été en mesure de proposer une première ébauche de contenu pédagogique pour une formation en épidémiologie de terrain des services vétérinaires chinois (FETP-v).

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ORGANISM :
CIRAD- UR AGIRs

DOCUMENT ACCESS:
Ressource center of CIRAD

(Library of Baillarguet)

ACCESS to the REFERENCE:
- Free

MISSION FUNDED by : FAO

REFERENCE :

TITLE : FAO Training Workshop on "Epidemiology, surveillance, outbreaks investigation and training engineering in Epidemiological field"

TYPE of APPROACH :
Delocalized training workshop

DATE and PLACE of PUBLICATION :
September 2009, Montpellier, France

COUNTRIE CONCERNED :
China

KEY WORDS :Training, Epidemiology
Training engineering.

SUMMARY:
This workshop has been organised by the FAO in collaboration with the CIRAD and the Chinese veterinary services. The training was shared into two specific parts:

- The first part had for objective to reinforce the capacities of the provincial veterinary services in terms of animal diseases epidemiology and especially in the field of highly pathogenic avian influenza disease outbreaks investigation. In top of formal presentations and working groups, the training was based on the use of 2 computer assisted tools: one developed by the CIRAD and the national veterinary school of Maison-Alfort, named RANEMA, used for training on applied epidemiology of animal disease and the second one developed by CIRAD and FAO, named RANEMA-Flu, dealing with avian influenza.
- The second part had for objective to train participants on the tools of training engineering. During this week, the participants have discovered applied methodologies for the preparation of training plan but they have as well used these methods in order to identify and characterised the training needs of the main actors in epidemiology and surveillance

The workshop brought together 20 participants from different administrative levels (prefectural, provincial and central level). The courses improved extensively the basic knowledge of the participants in epidemiology and allowed them to go through the main steps that are necessary during an outbreak investigation. Participants have been trained as well on the use of a very simple mapping software enabling them to illustrate their report.
At the end of the second training week, trainers and participants have been able to produce a first draft of pedagogic contents for training in field epidemiology for Chinese veterinarians.

# List of acronyms

| | |
|---|---|
| CIRAD | Centre de Coopération Internationale en Recherche Agronomique pour le Développement (French Agricultural Research Centre for International Development) |
| FAO | Food and Agriculture Organization of the United Nations |
| FETP-V | Field Epidemiology Training Program - Veterinary |
| HPAI | Highly pathogenic avian influenza |
| MCQ | Multiple choice questionnaire |
| RANEMA | Remise A Niveau en Epidemiologie des Maladies Animales |
| TADs | Transboundary animal diseases |

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# 1. Background

Since HPAI was first reported in the mainland of China in 2004, the virus is still circulating actively causing diseases in animals and humans. In 2008 the virus was detected in several provinces of Southern China, the disease re-emerge in Hong Kong SAR and new provinces (in Eastern and South-eastern China) were declared infected. In January 2009, 8 human cases were reported. The progression of the disease in 2008 demonstrates a need to improve the control of the disease in China through better surveillance and more accurate outbreaks investigation procedures.

The objective of the Letter of Agreement assignment is to assist FAO in raising the capacity of national and provincial veterinary services in the area of disease surveillance and outbreak investigation techniques. Experts from CIRAD should as well strengthen the implementing capacity of the veterinary services in epidemiological training organisation and should work on a preliminary draft of a training plan for the implementation of an FETP-V in China.

# 2. Objectives of the workshop

The workshop had three main objectives:

- To review basic epidemiology concepts and surveillance principles
- To train participants on how to organise field outbreak investigations on infectious diseases
- To train participants on how to organise epidemiology training sessions (including educational techniques) and to identify constraints that may be encountered when trying to implement training at the national level
- To train participants on how to use the RANEMA and RANEMA-Flu tools

# 3. Program and educational approach

At the beginning of the workshop the outputs were defined as follows:

- Enhanced skills and capability in epidemiological analysis on the part of workshop participants (a complete list of RANEMA educational objectives is provided in Annex I)
- Participants should be able to implement field outbreaks investigations
- Enhanced ability to organise a training in epidemiology, including participatory and recreational educational techniques
- Availability of a set of training material (Applied Veterinary Epidemiology handbook and a CD containing the install file for the trainer version of RANEMA and RANEMA-Flu)

The training program was drafted by CIRAD and validated by the FAO (see Annex II). It spreads over 10 days, the first week was dedicated to epidemiology and surveillance, followed by a week focusing on the development of training capacities.

**Participatory techniques**

A range of different techniques were used to encourage student-centred learning, the main point of these techniques was to use the experience that the students already have, and to present them with

problems that they have already faced. To solve these problems they need to think, discuss with other students and discover new information.

**Warmers:** Warmers are exercises which are designed to "break the ice". They should warm up the students, making them comfortable in speaking out things, making them reflect on things and preparing them for the next topics to come. They should be relatively short, games and competitions are mainly used, or as the simplest method questions and answers.

**Questions and answers:** A way to check if subjects have been properly understood is to ask direct questions, targeting one student and asking directly another if the targeted one cannot fully reply. Questions are good for introducing new topics. A question is asked on how to deal with a problem (for example how to select animals). This can lead to a full discussion during which solution proposals might be found.
A second example to check if subjects have been properly understood is a Knowledge Quiz. The students can be guided to ask questions to their student fellows who try to answer; it will be clear if given topics have been understood or not. Each individual or –better- each subgroup receives points for the right answer. For the trainer, the capacity of the students to answer correctly to the questions indicates how his training is received and processed by the students.

# 4. Course of training

## A. GENERAL ORGANISATION:

### Participants

Participants were from prefectures (around 18), province (around 7) and national (2)
Almost all participants were already involved in field investigations,
Around 10 of them already received a professional training in epidemiology.
4 already used a GPS,
2 are routinely doing data analysis,

### Place of training and logistical organisation

The workshop took place within the facilities of the U Choice Hotel, which were perfectly adapted to the contents of the workshop. The lectures and the group activities were led by Dr Stéphanie Desvaux, Dr Flavie Goutard and Dr Jérome Thonnat. Because of the strong and effective implication of the FAO technical advisor, Dr Guo, Fusheng (FAOCN) and the representative of the veterinary services of Yunnan province in charge of the logistic organization, the training has been held under the best conditions. We are grateful for the very efficient translation done by Mrs Jeny, her contribution was determining in the success of this workshop.

### Teaching material

The set of teaching materials used by the trainers was compiled in a CD-ROM given to each participant. The CD contained also additional reading material as well as a copy of the software used during the training. The book "Applied veterinary epidemiology and the control of disease in population" and a hard copy of the CD-Rom RANEMA were as well provided to each participant

## B. WEEK ON EPIDEMIOLOGY AND SURVEILLANCE:

### Introduction to veterinary epidemiology and animal disease surveillance

The main objective of this week was to improve the capacity of the group in terms of disease investigation. Thus, the general epidemiological concepts introduced during the presentations and the computer assisted learning sessions were oriented in order to meet this objective. During the week, the trainer insisted on:

- the type of data needed to estimate the main epidemiological parameters and the differences between those different parameters,
- the way such data can be collected.

### Outbreak investigation

After a presentation to introduce the concepts and the practical steps of disease outbreak investigation, a working group session was organised to discuss the main constraints faced by veterinarians in the field when doing an outbreak investigation (see annex IX). The theory was then used during a field visit to a false outbreak. During this field trip, the group was organised into different groups:

- one group responsible of the data collection (since the farmer did not have disease outbreak recently, the group questioned him about a past outbreak),
- one group responsible of the biosecurity during the field visit,
- one group of observers

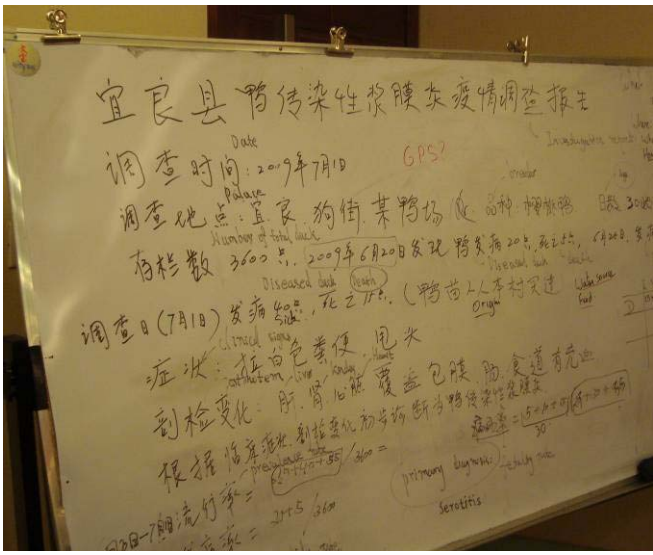
The next day, we organised a debriefing session, asking to the group responsible for the data collection to write a report about their investigation. Then the remaining participants and the instructor discussed this report: what was missing, what was good etc…

During the debriefing report, the instructor pointed out some difficulties of the group to correctly report the figures related to the susceptible and sick population which then makes it impossible to calculate the main epidemiological parameters (morbidity and mortality rates, case fatality rate…).

The part related to the outbreak tracing was also not fully done, this is partly because this is not commonly done by field veterinarians and also because of the exercise itself (outbreak occurred few years ago).

For the other points of the investigation: description of the event (what), temporal description of the even (when), the group succeeded to correctly collect and report the information.

Questions to the farmers



Report the following day

**Sampling size**
One day was also dedicated to the use of free access software for epidemiologists, useful to estimate a sample size or organising a random selection of units for surveillance (Free-Calc, Winepiscope and Survey Tool box).

**GIS and surveillance**
Half of a day was used to introduce the role of GIS in surveillance of animal diseases. The main objective of this session was to explain the type of data needed to be collected in order to map outbreaks or surveillance data. We also introduced basic software for visualizing spatial data (Arc explorer) and the trainees successfully did the practical applications using a Chinese GIS dataset.
The possibility for provincial staff to produce their own maps may also contribute to the general improvement of data reporting.

**RANEMA tools.**

A computer assisted learning tool (RANEMA : building up knowledge on animal diseases epidemiology) was developed in collaboration with Alfort National Veterinary School, CIRAD formation unit and the epidemiology unit with the Ministry of Foreign and European Affairs funding. This teaching tool is made up of scenarised activities to stimulate and motivate students from tropical countries and could be used alone as part of distance learning training or on top of traditional formation, reducing the teaching time. The CDRom is based on the veterinary epidemiology manual (Toma B. *et al.* Applied veterinary epidemiology and the control of disease in population Maisons-Alfort, AEEMA 1999) with some modifications in order to be adapted to teaching sessions.

Ranema Flu is an interactive learning tool on the prevention and control of Highly pathogenic Avian Influenza. It has been developed by CIRAD (AGIRs) and FAO (AGAH / EMPRES).It includes information on the prevention, detection, control and eradication measures that you can take against HPAI and is made up of 5 chapters :
Chapter 1: Introduction to avian influenza
Chapter 2: Surveillance of the HPAI
Chapter 3: Avian Influenza and wild birds
Chapter 4: Introduction to Risk Analysis
Chapter 5: Resources

The RANEMA course itself is also largely based on participatory techniques as it is designed as a role paying game to teach epidemiological concepts in a user-friendly way. The trainee plays a veterinarian working for the veterinary services of a virtual country named RANEMA who must refresh his knowledge in epidemiology to carry out his professional duties, such as quantifying the situation of a disease, interpreting laboratory results, or designing epidemiologic surveys.

Those tools were mainly used during the day 1 and 4. The objective was to break the monotony of the course to keep the motivation and attention of the participants and also to give time to each participant to understand the general concepts and possibly ask a specific translation of some definition/concepts.

**Acquired knowledge**

An evaluation measured the knowledge acquired by the participants at the end of the first week of training in epidemiology and surveillance, and gave information on the participants' perception of a problem or a given concept.

A multiple choice questionnaire (See Annex V) was used at the start of the session to have a baseline of the participants' initial knowledge and perceptions, and then at the end of the first week of training to measure the degree of improvement.

The objective of the evaluation was to measure:

- the basic overall skill of the group
- to detect potential disparities in order to adapt the content of the course
- the overall progress of the entire group

Thus, it was individual and anonymous.

The means of the MCQs are significantly different ($p<0.01$ using a Student t-test) between the two evaluations, with the mean of the final evaluation (14.1/20) being, in average, **more than twice** the initial evaluation (6.2/20). The general progress of the group is noteworthy.

The mean progression is maybe the result of a **better understanding** after the training by the participants of:

- Question 3 = definitions of Prevalence and Incidence (from 10% to 90% of correct answer)
- Question 5 = definition of proportion, ratio and rate (from 0 to 70% of correct answer)
- Question 6 = accurate versus precise estimate (from 0 to 70% of correct answer)
- Question 14 = GPS use (from 10% to 80% of correct answer)

The questions **best answered** during the final evaluation are:

- Question 8 = expected prevalence when no data(100% of correct answer)
- Question 3 = = definitions of Prevalence and Incidence (90% of correct answer)
- Question 7 = definition of targeted surveillance (90% of correct answer)
- Question 12 = definition of tracing forward (90% of correct answer)

The questions **less understood** during the final evaluation are:

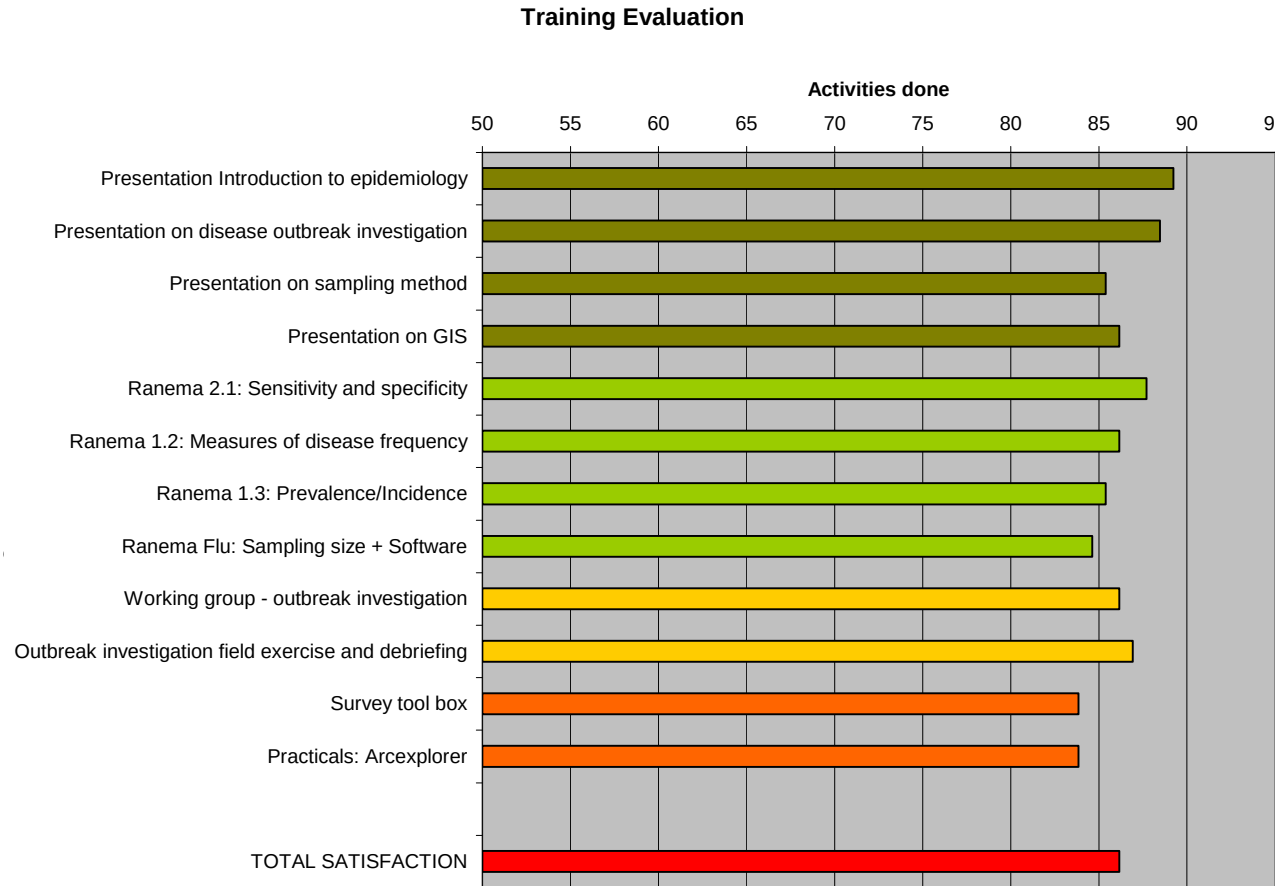
- Question 2 = definition of analytical studies (20% of correct answer)
- Question 11 = when the trace back period starts (30% of correct answer)

Details of the MCQ are available in the annex IV.

**Evaluation of satisfaction**

The last day of the workshop, each participant was asked to make his/her remarks about the training proposed and to quantify his/her degree of satisfaction about the contents and the method used (See training evaluation form in Annex V). The assessment is on the whole positive. The total satisfaction rate is 86%.

The practical with RANEMA, especially the sessions on prevalence / incidence, and the field outbreak investigation were the most appreciated by the participants. The parts on GIS software was found the most difficult to understand. Half of the participants suggested that the course should have been taught in Chinese and several of them suggested scheduling the course on a longer period in order to decrease the number of training hours per day and to have more time to study practical field cases.



## C. WEEK ON TRAINING ENGINEERING:

One of the objectives of the second week was to develop together with the participants a first proposal for a Field Epidemiology Training Program for Veterinarians (FETP-v), in order to improve disease surveillance and outbreak response in PR China.

A large room was given to participatory techniques in order to promote experience sharing between participants and to promote collaboration between animal health epidemiology units of the different provinces (see Annex IX). The lectures have been filled up with three working group activities during which participants have been led to think about the different steps that are needed to prepare a training program:

**Brainstorming activities:**

1) Asking the participants to list the keys stakeholder that will be trained through the FETP-v program
2) Asking the participants what are the specificities of adult public and what must be the specificities of training's program for adult public.
3) Asking the participants to describe the evaluation system that you will set up during the training your have designed

**Working group activities:**

1) In order to assess expectations of the participants from the training we asked the 3 following questions first individually them by group of 2, then groups of 4 and the restitution was finally done by 2 groups.
    - According to your experience: What are the characteristics of **a good training** ? What are the problems most frequently met and how to avoid them?
    - According to your experience: What are the characteristics of **a good trainer**? What are the most frequent mistakes done and how to correct them?
    - Which questions do you ask yourself about training activities and for which you would like to have some answers during this week ?
2) Asking the participants to define for the 3 levels (Provincial, County and Village level) the training needs, by answering 3 questions:
    - What are the problems
    - Which objectives
    - Which activities needed
3) Asking the participants to set up a reference set of skills for 3 stakeholders (Provincial, County and Village veterinarian)
4) Asking the participants to set up pedagogic objectives from the proposed referential set of skills and make recommendation for the training plan
5) Asking the participants to draw a training program in the framework of FETP-v for the 3 stake holders

Oral presentations by participants were carried out after each work group organised in 3 groups. The methodology and the review of all the group activities have been summarised and are presented in the annex .

**Acquired knowledge**

An evaluation measured the knowledge acquired by the participants at the end of the second week in engineering skills and gave information on the participants' perception of a problem or a given concept.

A multiple choice questionnaire (See Annex ) was used at the start of the session to have a baseline of the participants' initial knowledge and perceptions, and then at the end of the first week of training to measure the degree of improvement.

The objective of the evaluation was to measure:

- the basic overall skill of the group
- to detect potential disparities in order to adapt the content of the course
- the overall progress of the entire group

Thus, it was individual and anonymous.

The means of the MCQs are significantly different ($p<0.01$ using a Student t-test) between the two evaluations, with the mean of the final evaluation (14.2/20) being, in average, **greater of 5 points than** the initial evaluation (9.3/20). The general progress of the group is noteworthy.

The mean progression is maybe the result of a **better understanding** after the training by the participants of:

- What is a referential set of skills (from 10% to 90% of correct answer)
- On what consist an analysis of training needs (from 20% to 70% of correct answer)

The questions **best answered** during the final evaluation are:

- What is a referential set of skills (100% of correct answer)
- What is training program engineering (100% of correct answer)
- What are the characteristics of an adult audience (90% of correct answer)

The questions **less understood** during the final evaluation are:

- Evaluation of training impact (10% of correct answer) – certainly du to translation error
- Most important point when designing a training (50% of correct answer)

Details of the MCQ are available in the annex

**Evaluation of satisfaction**

The last day of the workshop, each participant was asked to make his/her remarks about the training proposed and to quantify his/her degree of satisfaction about the contents and the method used (See training evaluation form in Annex V). The assessment is on the whole positive. The total satisfaction rate is 84%.

For the technical parts training needs, referential of training, training plan and pedagogic techniques were the most appreciated by the participants, they enjoyed as well practical especially brainstorming sessions. The parts on evaluation indicators and needs characterisation was found the most difficult to understand. Lot of the participants suggested that the course should have been taught in Chinese and several of them suggested including in the course more examples of training plan in other countries and more pedagogic techniques.


Training Evaluation
Activities done
50
55
60
65
70
75
80
85
9
Introduction to training needs
Needs characterisation
Referential of competencies
Pedagogic objectives
Training plan and referential of training
Pedagogic techniques and specificties of adult training
Evaluations
Final discussions
Brainstorming on stakeholders
Training needs analysis
Reference set of skills designing
Pedagogic objectives designing
Brainstorming on adult public characteristics
Training program designing
Brainstorming on evaluations
TOTAL SATISFACTION

# 5. Conclusions / Recommendations

## A. EPIDEMIOLOGY AND SURVEILLANCE

The main objectives of the training session were achieved:

- To enhance the knowledge of participants in epidemiology
- To provide them guidelines to implement outbreak investigation on the field
- To train them on how to use RANEMA
- To exchange experiences on activities in epidemiology and HPAI surveillance developed in the different districts present during the workshop.

This group was very heterogeneous in their epidemiological and computer skills. This means that they have appreciated different things from the workshop. One of the main constraints was the need for a translation, which has limited the exchanges during the group discussions between the English speaking participants and the others. Globally the group was very interested in the tools presented (software and Ranema) and in the field session on outbreak investigation.
During the workshop a true dynamic of experiences-sharing was born between participants who showed a great interest and an important involvement in every activity proposed.

If additional trainings should be organised, more field work in real conditions should be an objective. Indeed, there is a need to provide support to field veterinarians in their working conditions. This would be a more efficient way to assess the practices related to the biosecurity during a field investigation and to the data collection and the support (forms) used for it. It would be also of interest to better understand the reporting mechanisms in order to identify possible gaps or constraints leading to poor data quality.

## B. TRAINING ENGINEERING

The main objectives of the training session were achieved:

- To provide them with educational techniques they will need to organise epidemiology trainings in their own countries
- To identify constraints that may be encountered when trying to implement these training

The group was heterogeneous, from people of central level who are directly dealing with training implementation to veterinarian of provincial level who have for some of them never organised training. But the outcome of the week was very positive, most of the people were feeling confident enough to organise training on their own after the session.
A discussion was held at the end of the week to think about how to organise training sessions in epidemiology at the national level in the different province. The use of RANEMA during the workshop was clearly a great success and all participants enjoyed it and were very keen on using it to organise training in their administrative areas. The participants felt a sense of responsibility to pass on the knowledge they had acquired during the week to fellow colleagues of the veterinary services.
To address the constraint of English language, the FAO proposed to further continue its support to the improvement of veterinary services in China, by translating the RANEMA CD-ROM and the Applied Veterinary Epidemiology handbook.

## C. DRAFT PROPOSITION FOR FETP-V PROGRAM IN CHINA

In November 2008, an initial mission, done by Dr David Castellan (FAO Bangkok), was undertaken to assess the need for establishing a Field Epidemiology Training Program for Veterinarians (FETP-V) in PR China. This mission reveals that there is a "critical need" for applied field epidemiology training in order to improve the animal disease surveillance and outbreak response. The proposed FETPV program should be based on the FETP model of delivering training while providing government services.
One of the objectives of the second week of this training workshop was to develop, with the technical staff present, a draft proposition of training curriculum for FETP-v in PR China.
This proposal has been developed through several working groups in several steps.

The first point was to develop the list of stakeholder which are involved in the animal surveillance system:

- Village Veterinarians
- Laboratory staff (county, prefecture, provincial, national)
- Statisticians (township, county)
- Farmers
- Technicians of large scale farms
- Private veterinarians
- Veterinary services staff (county, prefecture, provincial, national)
- Decision –makers (county, prefecture, provincial, national)
- University Professor

Then we selected the actors which will directly benefit from the FETP-v:

| **FETP-v** | Training done by Vet services | Information through meetings |
|---|---|---|
| Veterinary services staff:<br>• National<br>• **Provincial**<br>• Prefecture<br>• **County** | • Farmers<br>• Technicians of large scale farms<br>• **Village veterinarians** | • Decision-makers |

After that we decided together to select 2 actors directly targeted by the FETP-v (Provincial and County veterinarian) and one actor which will be trained by the staff trained under the FETP-v, to develop more in depth a training curriculum.

We have first worked out on the activities that these actors are supposed to do in the context of surveillance and disease investigations, and then on the problems they come across in the field situation.

From this assessment, we have developed a list of competencies for each actor that they should acquire after the training:

| Actors | Roles | Competencies |
|---|---|---|
| **Village Veterinarians** | **Epidemiological activities** | • To record crude data (vaccination, animal movement…)<br>• To report to county level in standardized way and on time.<br>• To declare animal disease outbreak on time and take first action (clinical signs)<br>• To collect accurate specimen (storage, shipment…)<br>• To give feedback to farmers |
| **County Veterinarians** | **Communication activities** | • To organise farmers meetings<br>• To build stakeholders network to involve them in animal diseases surveillance |
| | **Training activities** | • To train village veterinarian to report animal diseases<br>• To train large farms technicians to report animal diseases<br>• To train the township staff level to collect and analyse the data |
| | **Epidemiological activities** | • To implement routine surveillance activities according to the program<br>• To implement basic data analysis<br>• To implement outbreak investigation (disease diagnosis, filling of forms, accurate specimens…)<br>• To report to head office data in standardized way and on time. |
| | **Laboratory activities** | • To implement good laboratory analysis and new laboratory techniques |
| **Provincial Veterinarians** | **Communication activities** | • To produce feedback on epidemiological activities to stakeholders<br>• To build stakeholders network to involve them in animal diseases surveillance<br>• To develop relationship with public health sector |
| | **Training activities** | • To train veterinarians at prefecture and county level on outbreak investigation<br>• To train laboratory staff at prefecture and county level on good laboratory analysis and new techniques<br>• To train veterinarians at prefecture and county level on basic epidemiology knowledge and basic data analysis |
| | **Epidemiological activities** | • To set up epidemiological data collection system (market, slaughter house, vaccination…) in order to build epidemiological indicators<br>• To implement outbreak investigation (able to record GPS coordinates)<br>• To do statistical analysis of data in order to follow disease situation in his area<br>• To report to head office data in standardized way and on time.<br>• To implement qualitative risk analysis |
| | **Laboratory activities** | • To implement good laboratory analysis and new laboratory techniques |

# Acknowledgements

We thank FAO China for funding the participation of, respectively, the participants and the course instructors; Dr Vincent Martin for his invitation and his important outputs in the preparation of the training contents; Dr Guo Fusheng (FAOCN) and the representative of the veterinary services of Yunnan province for welcoming us and arranging all the logistics of the workshop at U Choice Hotel; and Mrs Jeny for her perfect command of English.

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# Annex I: Program week on Epidemiology

| | **Monday 29th** | **Tuesday 30th** | **Wednesday 1st** | **Thursday 2nd** | **Friday 3rd** |
|---|---|---|---|---|---|
| 9:00-9:30 | Official opening - FAO presentation | Question time | | Feed back from field visit | Question time |
| 09:30-10:30 | Introduction to the course + participants presentation + MCQ | Introduction to disease outbreak intervention | Field visit: disease outbreak investigation practice | | Role of GIS in the surveillance of animal diseases |
| *10:30-10:45* | *Tea break* | *Tea break* | | *Tea break* | *Tea break* |
| 10:45-11:30 | General introduction to epidemiology: main concept and definitions & principal uses | Introduction to disease outbreak intervention cont. | | Chapter 3.1 Sampling methods (done together) + presentation to introduce the different sampling size calculation | Practice on GIS: using dataset of surveillance or outbreaks |
| 11:30-12:00 | | | | Ranema-flu Chapter 2.3: sampling size for AI surveillance+ Use of Winepiscope and FreeCalc | |
| *12:00-14:00* | *Lunch* | *Lunch* | | *Lunch* | *Lunch* |
| 14:00-15:00 | General introduction to animal diseases surveillance: distribution of reading material | Group discussion: outbreak investigation | | Ranema-flu Chapter 2.3: sampling size for AI surveillance+ Use of Winepiscope and FreeCalc cont. | Final discussion and explanation on sensitive points |
| | | | | | MCQ / Training evaluation |
| *15:00-15:15* | *Tea break* | *Tea break* | | *Tea break* | *Tea break* |
| 15:15-16:30/17:00 | Introduction to Ranema: Chapter 1.2: Disease frequency + Ranema: Chapter 1.3 : Inc / Prev | Ranema: Chapter 2.1: Sensitivity and Specificity | | Practical random selection of farms or villages using the survey tool box cont | |

# ANNEX II: Program week on Training engineering

| Day 1: 06/07/2009 | | Day 2: 07/07/2009 | | Day 3: 08/07/2009 | | Day 4: 09/07/2009 | |
|---|---|---|---|---|---|---|---|
| **Time** | **Activity** | **Time** | **Activity** | **Time** | **Activity** | **Time** | **Activity** |
| 9:00-09:15 | **Official opening / Introduction/** | 9:00-09:30 | **Questions time** | 9:00-09:30 | **Questions time** | 9:00-09:30 | **Questions time** |
| 9h15–9h30 | **Objectives and schedule of the training** | | | | | | |
| 9h30–9h45 | **Presentation of FETPV** | 09:30-10:00 | **Referential of competencies** | 09:30-10:00 | **Brainstorming** | 9:30-10:30 | **Restitution** |
| 9h45-10h15 | **Evaluation of knowledge improvement** | 10:00-10:45 | **Working group** | 10:00-11:00 | **Pedagogic techniques** | | |
| 10h15-10h45 | Coffee break | | | | | 10:30-11:00 | Coffee break |
| 10h45-12h00 | **Working group** | 10:45-11:15 | Coffee break | 11:00-11:30 | Coffee break | 11:00-12:30 | **Working group** |
| | | 11:15-12:00 | **Working group** | 11:30-13:00 | **Working group** | | |
| 12h00-13h30 | Lunch break | 12:00-14:00 | Lunch break | | | 12:30-14:00 | Lunch break |
| 13:30-14:30 | **Introduction to training needs** | | | 13:00-14:00 | Lunch break | | |
| | | 14:00-15:00 | **Pedagogic objectives** | 14:00-15:00 | **Working group** | 14:00-14:30 | **Evaluation of knowledge improvement** |
| 14:30-15:00 | **Brainstorming** | | | | | 14:30-15:30 | **Evaluation of training** |
| 15:00-15:30 | Coffee break | 15:00-15:30 | Coffee break | 15:00-15:30 | **Evaluation** | | |
| 15:30-16:00 | **Needs characterization** | 15:30-16:00 | **Referential of training** | 15:30-16:00 | Coffee break | 15:30-16:00 | **Closure** |
| 16:00-17:30 | **Working group** | 16:00-17:30 | **Working group** | 16:00-17:30 | **Working group** | | |

# Annex III : Pedagogic objectives of RANEMA

At the end of the training, in the field of applied veterinary epidemiology and the control of disease in populations, the participants should be able to:

1. To give the definition of the **main words** used in epidemiology: epidemiology; descriptive epidemiology / analytical epidemiology ; epidemic (epizootic) / endemic (enzootic) / pandemic (panzootic) / common source epidemic ; incidence / prevalence ; morbidity rate / mortality rate / case fatality rate ; disease / infection, reservoir, vector.

2. To explain the **difference** between the **descriptive** epidemiology approach and the **analytical** epidemiology approach.

3. To implement the **descriptive epidemiology approach** for any disease in a population: to process and analyse the main measures of disease frequency (incidence, prevalence and the different rates) by using the appropriate unit of epidemiological interest (the individual or the herd) and by quantifying disease occurrence in a population.

4. To give the definition of the **words**: screening test, diagnostic test, sensibility and specificity of a test, predictive values (negative or positive) of a result, apparent prevalence, and true prevalence.

5. To calculate the sensitivity, specificity and predictive values of a **screening test** applied at individual level and to distinguish the quality of a test and the quality of the results.

6. To prepare a simple **sampling design** in order to estimate a prevalence or a rate (**quantitative** approach) to describe a disease in a region and/or during an outbreak (animal health, public health):
    a. To define a representative sample
    b. To make the difference between accuracy and precision
    c. To define the factors influencing the accuracy and the precision of the result estimated from a sample
    d. To calculate the confidence interval of the population prevalence
    e. To calculate the required sample size required depending on the desired level of precision
    f. To compare the a prevalence between two populations (calculation of Chi2 for a given degree of freedom, signification of Chi2, determine and understand the signification of the P-value

7. To prepare a simple **sampling design** in order to detect the presence of a disease (or, its absence) in the study population (**qualitative** approach):
    a. To calculate the required sample size required depending on the selected level of confidence
    b. To analyse the results from a qualitative study

8. To apply the analytic epidemiology approach to a given situation, by using the notions of relative risk, odds ratio, statistical association and causal relationship:
    a. To define the principles of a cohort study and a case-control study, the advantages and disadvantages of each kind of study, to explain the sampling procedure.
    b. To calculate the RR and the OR
    c. To give the signification of the RR and the OR
    d. To explain the difference between a statistical association and a causal relationship

# Annex IV : Pedgogic objectives for the training engineering

## Day1: 06/07/2009

| Time | Activity | Objective | Method |
|---|---|---|---|
| 9:00-09:15 | **Official opening / Introduction/** presentation of participants | | Asking their previous experience in training field |
| 9h15–9h30 | **Objectives and schedule of the training** | | |
| 9h30–9h45 | **Presentation** | FETP-v Program | Discussion about the program |
| 9h45-10h15 | **Evaluation of knowledge improvement** | Evaluation of knowledge improvement due to the training, done on the 1st day and last day of training | The Participants are asked to answer a questionnaire with 8 questions concerning training organisation, training skills, training needs, pedagogic tools and other subjects related. The same questionnaire is again presented at the end of the training. |
| 10h15-10h45 | Coffee break | | |
| 10h45-12h00 | **Working group** | Teaching skills and expectations | The Participants are asked to think about 3 questions:<br>- what is a good training<br>- how to be a good trainers<br>They think about the questions first individually, then by two, by four and the restitution is done at the end by two groups. |
| 12h00-13h30 | Lunch break | | |
| 13:30-14:30 | **Introduction to training needs** | To highlight the importance to adapt the objectives of the training to the needs of participants:<br>- 5 W2H<br>- Who and why<br>- Actors of the SS | Collective presentation |
| 14:30-15:00 | **Brainstorming** | Actors | Plenary session |
| 15:00-15:30 | Coffee break | | |
| 15:30-16:00 | **Needs characterization** | To identify the different needs depending of the actors and the tasks expected | Collective presentation |

| | | | |
|---|---|---|---|
| 16:00-17:30 | **Working group** | To discuss bout the needs for the participants of FETPv trainings | work group sessions (in 2 groups):<br>restitution in plenary |

# Day2: 07/07/2009

| Time | Activity | Objective | Method |
|---|---|---|---|
| 9:00-09:30 | **Questions time** | To be sure that the topics of the previous day were all understood<br>To highlight difficult points in the training course | You ask every participants to write on a piece of paper a question about either something not clear for him or something he thinks difficult to understand.<br>Papers are fold and put in a hat, each participant is taking a question randomly and try to answer it.<br>If he can't, the rest of the group should answer |
| 09:30-10:00 | **Referential of competencies** | To understand how to draw a referential of competencies | Collective presentation with illustration |
| 10:00-11:00 | **Working group** | To be able to identify which competencies you need to improve for which actors in the FETPv framework<br>To draw the referential of competencies. | work group sessions (in 2 groups): |
| 11:00-11:30 | Coffee break | | |
| 11:30-12:00 | **Working group** | To be able to identify which competencies you need to improve for which actors in the FETPv framework<br>To draw the referential of competencies. | restitution in plenary |
| 12:00-13:00 | **Pedagogic objectives** | How to move from referential of competencies to objectives | Collective presentation with illustration |
| 13:00-14:00 | Lunch break | | |
| 14:00-15:00 | **Referential of training** | To understand how to organise a training plan | Collective presentation with illustration |
| 15:00-15:30 | Coffee break | | |

| | | | |
|---|---|---|---|
| 15:30-17:00 | **Working group** | To be able to identify pedagogic objectives from your referential of competencies<br>To draw a table with the pedagogic objectives in the framework of the FETPv. | work group sessions (in 4 groups):<br>restitution in plenary |

# Day3: 08/07/2009

| Time | Activity | Objective | Method |
|---|---|---|---|
| 9:00-09:30 | **Questions time** | To be sure that the topics of the previous day were all understood<br>To highlight difficult points in the training course | You ask every participants to write on a piece of paper a question about either something not clear for him or something he thinks difficult to understand.<br>Papers are fold and put in a hat, each participant is taking a question randomly and try to answer it.<br>If he can't, the rest of the group should answer |
| 09:30-10:00 | **Brainstorming** | To analyse the specificities when we train an adult public | The Participants are asked to think about 2 questions:<br>- what are the specificities of adult public<br>- what must be the specificities of training's program for adult public |
| 10:00-11:00 | **Pedagogic techniques** | To know the different pedagogic techniques available: operational training, study cases… | Collective presentation with illustration |
| 11:00-11:30 | Coffee break | | |
| 11:30-13:00 | **Working group** | To draw a training program in the framework of the FETPv | work group sessions (in 4 groups): |
| 13:00-14:00 | Lunch break | | |
| 14:00-15:00 | **Working group** | To draw a training program in the framework of the FETPv | restitution in plenary |
| 15:00-15:30 | **Evaluation** | To know the importance of evaluation and the different techniques | Collective presentation with illustration |
| 15:30-16:00 | Coffee break | | |

| | | | |
|---|---|---|---|
| 16:00-17:00 | **Working group** | To be able to identify different method of evaluation.<br>To draw a table with the evaluation methods used in the framework of the FETPv. | work group sessions (in 2 groups): |
| 17:00-17:30 | **Working group** | To be able to identify different method of evaluation.<br>To draw a table with the evaluation methods used in the framework of the FETPv. | restitution in plenary |

# Day4: 09/07/2009

| Time | Activity | Objective | Method |
|---|---|---|---|
| 9:00-09:30 | **Questions time** | To be sure that the topics of the previous day were all understood<br>To highlight difficult points in the training course | You ask every participants to write on a piece of paper a question about either something not clear for him or something he thinks difficult to understand.<br>Papers are fold and put in a hat, each participant is taking a question randomly and try to answer it.<br>If he can't, the rest of the group should answer |
| 9:30-10:30 | Restitution | Presentation of the FETPv program as it has been drawn during the week - discussion | Collective presentation with illustration |
| 10:30-11:00 | Coffee break | | |
| 11:00-13:00 | Working group | Organisation of a future training plan for the FETP-V Programme - VALIDATION | |
| 13:00-14:00 | Lunch break | | |
| 14:00-14:30 | **Evaluation of knowledge improvement** | Evaluation of knowledge improvement due to the training, done on the 1st day and last day of training | The Participants are asked to answer a questionnaire with 10 questions concerning training organisation, training skills, training needs, pedagogic tools and other subjects related. The same questionnaire is again presented at the end of the training. |
| 14:0-15:30 | **Evaluation of training** | Evaluation of the organisation and the contents of the training session | |
| 15:30-16:00 | **Closure** | | |

# Annex V : MCQ Epidemiology

***1. Epidemiology* is based on that key issue:**

- Diseases are studied at individual level ☐
- Diseases are not randomly distributed ☐
- Diseases are randomly distributed ☐

**2. Analytical studies are used to:**

- To study distribution ☐
- To study determinants ☐
- To implement control programs ☐

**3. Definition of prevalence and incidence:**

Prevalence:

Incidence:

**4. If incidence is low, but duration is long (chronic):**

- Prevalence will be large in relation to incidence ☐
- Prevalence will be low in relation to incidence ☐
- Prevalence doesn't vary directly with incidence or occurrence ☐

**5. Definition of proportion, ratio and rate (you can use letters such as *a* and *b* to explain):**

Proportion:

Ratio:

Rate:

**6. When conducting a prevalence study, how can you get an accurate result?**

**When conducting a prevalence study, how can you get a precise result?**

**7. Targeted surveillance means that:**

- Surveillance is implemented at random on the population ☐
- Surveillance is implemented using passive reporting on the disease ☐
- Surveillance is implemented on selected localities or species, based on the increased likelihood of infection ☐

**8. When calculating the sample size needed to study the prevalence of a disease, if you have no idea of the situation of that disease, you need:**

- to take an expected prevalence close to 100% ☐
- to take an expected prevalence of 50% ☐
- to take an expected prevalence close to 0% ☐

**9. What is the main difference(s) between the two softwares *Freecalc* and *Winepiscope:***

**10. Sensitivity of a diagnostic test is the proportion:**

- of truly non-diseased animals which test negative ☐
- of truly diseased animals which test positive ☐
- of apparently diseased animals

**11. In outbreak investigation, the trace back period starts:**

- at the time of disease onset minus minimum incubation period ☐
- at the time of disease onset plus maximum incubation period ☐
- at the time of disease onset minus maximum incubation period ☐

**12. The tracing forward a case means:**

- you look for possible source(s) of the case ☐
- you look for possible spread of the case ☐
- you look for the index case ☐

**13. When you want to present the situation about new outbreaks of FMD at commune level on a map, it is better**:

- to show incidence data at village level (number of new village infected divided by total number of villages in the commune ☐
- to show raw data (number of outbreak per commune) ☐
- to incidence data at herd level (number of new herds infected divided by total number of herd in the commune) ☐

**14. Before using a GPS, what is important to check:**

# Annex VI : MCQ Training engineering

*This questionnaire is anonymous but we wish to be able to assess each individual's progress. Invent a pseudonym and write it below:*

***Your pseudonym:*** _____

*For each question, tick **only one box**, this box should correspond to the statement that you agree with most or which seems the most important.*

**1- In your opinion, a good trainer principally must:**

☐ be a good time keeper

☐ be an expert in the field he teaches in order to serve as a model

☐ accompany the training group to achieve the objectives of the training programme

☐ be an expert at communicating, knowing how to capture the attention of participants

**2- In your opinion, an adult audience primarily:**

☐ is resistant to proposed changes and innovations

☐ views the training as an occasion to escape from work

☐ has no knowledge about the topic addressed

☐ has expectations regarding the training and has valuable experience to contribute

**3- In your opinion, an analysis of training needs mainly consists of:**

☐ identifying, within the trainer's field of expertise, what could be useful to the training participants

☐ specifying as precisely as possible the knowledge to be transmitted during the training

☐ identifying the skills to be developed or reinforced to resolve a problem

☐ asking beneficiaries what they expect from the training

**4- In your opinion, when designing a training, the most important point is to focus on:**

☐ the participants, their experiences and work situations

☐ the knowledge to be transmitted during the training

☐ practical arrangements and housing during the training

☐ a balance between theory and practice

**5- In your opinion, defining a pedagogic objective involves specifying:**

☐ the knowledge that must be transmitted to participants during the training

☐ what the trainer should do during the training

☐ the skills that participants should acquire during the training

☐ the overall goal of the training

**6- In your opinion, a training frame of reference is:**

☐ a document produced by competent institutions specifying the conditions under which trainings should take place

☐ a description of different training sequences to be implemented by trainers

☐ a document specifying the skills that one wishes to build through a training

☐ a document summarizing the information that should be provided to the training provider: context, objectives, target audience, budget, etc.

**7- In your opinion, evaluating the impact of a training involves:**

☐ verifying whether the expectations voiced by participants at the beginning of the training were satisfied

☐ evaluating the satisfaction of participants regarding the training at its end

☐ evaluating the training's contribution to changes in an organization's operations

☐ verifying the knowledge acquired by participants at the end of the training

**8- In your opinion, training programme engineering is:**

☐ an overall approach involving the entire training processes, from conception to evaluation

☐ a methodology that enables the definition of the programme and the contents of the training

☐ the design of pedagogic tools to animate a training

☐ an ensemble of techniques that can be applied to optimize the cost-effectiveness of a training

# Annex VII : Evaluation of the Epidemiology Week

**What did you like most in the training course?**

Ranema (mostly 1.3 Inc/Prev) (7)
Case investigation (6)
GIS (5)
Sampling (4)
Practical exercises (3)
Software for sampling (3)
Basic concepts

**Is there something you did not like at all?**

language barrier (3)
Too short (2)
Sampling

**What was the most difficult to understand during this training?**

Language barrier (8)
GIS software (5)
Softwares (4)
Prevalence / Incidence (2)
Sensitivity and specificity
Basic in epidemiology

**What are your suggestions to improve this training. Which subject would you like to see in the upcoming trainings?**

Teaching material in chinese (10)
Longuer training course (4)
More field experience (2)
More practice
More practice experience from other countries
More field exercise
GIS training
Analysing our own data

# Annex VIII : Evaluation of training engineering week

## Evaluation of Training

Please, cross the answer the most appropriate in your opinion

**1. Presentations**

Introduction to training needs

| very good | good | average | bad | very bad |
|---|---|---|---|---|

Needs characterization

| very good | good | average | bad | very bad |
|---|---|---|---|---|

Referential of competencies

| very good | good | average | bad | very bad |
|---|---|---|---|---|

Pedagogic objectives

| very good | good | average | bad | very bad |
|---|---|---|---|---|

Training plan and referential of training

| very good | good | Average | bad | very bad |
|---|---|---|---|---|

Pedagogic techniques and specificities of adult training

| very good | good | Average | bad | very bad |
|---|---|---|---|---|

Evaluations

| very good | good | Average | bad | very bad |
|---|---|---|---|---|

Final discussion

| very good | good | Average | bad | very bad |
|---|---|---|---|---|

Current training program in China

| very good | good | Average | bad | very bad |
|---|---|---|---|---|

**2. Participatory sessions**

Brainstorming on stakeholders

| very good | good | average | bad | very bad |
|---|---|---|---|---|

Training needs analysis

| very good | good | average | bad | very bad |
|---|---|---|---|---|

Reference set of skills designing

| very good | good | average | bad | very bad |
|---|---|---|---|---|

Pedagogic objectives designing

| very good | good | average | bad | very bad |
|---|---|---|---|---|

Brainstorming on adult public characteristics

| very good | good | average | bad | very bad |
|---|---|---|---|---|

Training program designing

| very good | good | average | bad | very bad |
|---|---|---|---|---|

Brainstorming on evaluations

| very good | good | average | bad | very bad |
|---|---|---|---|---|

**What did you like most in the training course?**

Brainstorming (16)
Pedagogic techniques (3)
Workgroup (2)
Training plan
Reference set of skills
Specificities of adult training
Need analysis
Participatory techniques

**Is there something you did not like at all?**

Language (2)
Brainstorming on adult specificities
Lecture

**What was the most difficult to understand during this training?**

Evaluation indicators (11)
Development of training plan (2)
Reference set of skills
Language
Training needs

**What are your suggestions to improve this training. Which subject would you like to see in the upcoming trainings?**

Chinese teaching materials (9)
More example about experiences in other countries (3)
More pedagogic techniques (3)
Continous training (3)
Training on data analysis (2)
More practice (2)
Distance learning trainings
Expand the FETPV to prefecture and county level
Training on Vet diagnosis techniques
Materials in advance before the training
Targeted training for different levels

# Annex IX : GROUP WORKSHOP RESTITUTION

## WEEK 1
## Group discussion on outbreak investigation

3 groups were organized to separate provincial and national from prefecture levels, in order not to influence too much the answers of the prefecture levels.

**General questions:**
Do you use an outbreak form? Which ones?
Who is using it?
How often it was used last year in your duty area.
Do you have problem to fill the form?
Problem(s) for tracing back and forward?

**Group form province and national levels:**

Main constraints:
- vet allowance: field staff is not motivated to conduct proper investigation. It is the main constraint;
- farmer cooperation
- may be capacity of county level staff.

**Prefecture group 1 (Yunnan province)**
- They use a form that is adapted from the national form
- It is not used so often
- The design of the form is ok
- Farmers do not give good information to the vets, so it is difficult to complete the form
- Farmers do not report common diseases outbreak.

**Prefecture group 2 (Hunan)**

- Hunan also adapted its outbreak form from national one, it is not possible to force all provinces to use the same
- County or city staff is using the form but it is not used so often
- vet allowance is also a constraint to get good investigation
- farmers' compensation is a constraint to get good cooperation from farmers

**General comments:**
The groups mentioned that:
- There is not a lot of outbreak for main contagious diseases because China is using vaccination as the main control measure
- The relation between farmers and veterinarians used to be good but since culling policy was implemented for contagious diseases, the relations are getting worse and worse.

## Description of data management system

- The national data management system is applied at national, provincial and county level.
- County level enters directly data about outbreak and provincial staff cannot change it, they can just read it.
- Provincial staff check data entered by county and if they see a problem, they contact them
- Questions asked: what are the data available for mapping at prefecture and county level? Answer: mainly vaccination data since it seems that outbreak data, once entered to national information system, cannot be used by those who entered them.

## Investigation team

Recently, the national epidemiological center asked every province to assign a team for investigation. Each province has to report a list of staff that composes this team. Apart from veterinary services staff, experts from University for instance could be part of this team. The provinces have submitted this list but there is no feedback yet about the implementation in the field.

# WEEK 2


1. Be able to evaluate a successful training course
2. Be able to develop / organise a good training plan
3. Be able to become a good trainer
4. Need models for implementation
5. To know techniques for training
6. To know how to give training course depending on the level of participants
7. To think about language problems
8. To give training manual in Chinese


## Group 1

1) What are the characteristics of **a good training** ?
- Objectives clear and reasonable
- Training adapted to participants
- Material and contents should be adapted to program objectives
- Trainers adapted for the training
- Should be linked to field

What are the problems most frequently met and how to avoid them ?
- Contents not adapted to practical works
- Not enough practical to be able to use it in the field
- Lectures are repeating
- No need assessment before the training

## Group 1

2) What are the characteristics of **a good trainer** ?
- Good communication and language expression
- Make emotional link with participants
- Be a specialist in the field of training with practical experience
- Use simple exemple to explain difficult theories

What are the problems most frequently met and how to avoid them ?
- Lack of interaction between trainer and participants
- Too academic
- Not enough active
- Not enough examples

## Group 2

1) What are the characteristics of **a good training** ?
- Objectives clear and specific
- Good application
- Need to solve the problems
- Link between theory and practice
- Need field investigation

What are the problems most frequently met and how to avoid them ?
- Too much theory
- Same training for each stakeholders
- No need assessment before the training
- No feedback of the participants about the training

## Group 2

2) What are the characteristics of **a good trainer** ?

- Clear explanation
- Good management and organisation skills
- Quick to answer questions
- Good animation skills
- Good communication and language expression
- Be a specialist in the field of training with practical experience
- Use simple exemple to explain difficult theories

What are the problems most frequently met and how to avoid them ?

- Only lectures or text books
- No discussion
- No field
- Too academic

## Synthesis

1) What are the characteristics of **a good training** ?

- Objectives clear and specific
- Need to solve the problems
- Link between theory and practice, should be linked to field
- Training adapted to background of participants
- Material and contents should be adapted to program objectives
- Trainers adapted for the training

What are the problems most frequently met and how to avoid them ?

- Same training for each stakeholders
- Contents not adapted to practical works
- Not enough practical to be able to use it in the field, too much theory
- Lectures are repeating
- No need assessment before the training
- No feedback of the participants about the training

## Synthesis

2) What are the characteristics of **a good trainer** ?

- Clear explanation
- Good management and organisation skills
- Quick to answer questions
- Good animation skills
- Good communication and language expression
- Make emotional link with participants
- Be a specialist in the field of training with practical experience
- Use simple exemple to explain difficult theories

What are the problems most frequently met and how to avoid them ?

- Only lectures or text books
- Lack of interaction between trainer and participants
- Too academic
- Not enough active, no discussion, no field
- Not enough examples

## Brainstorming

DAY 1

## List of stakeholder involved in the system

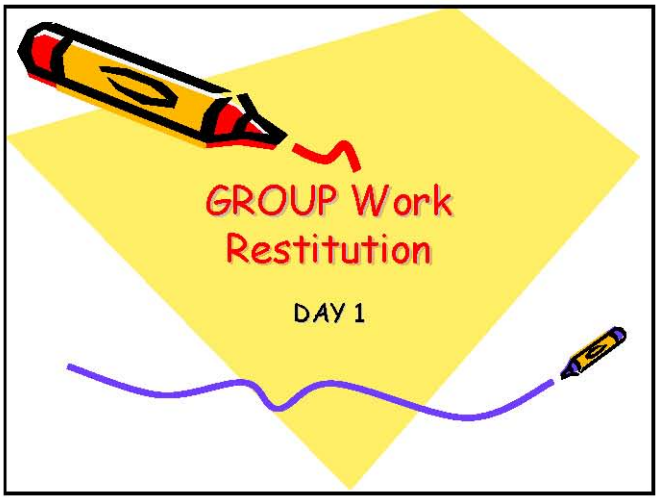
- Village Veterinarians
- Laboratory staff (county, prefecture, provincial, national)
- Statisticians (township, county)
- Farmers
- Technicians at large scale farms
- Private veterinarians
- Veterinary services staff (county, prefecture, provincial, national)
- Decision –makers (county, prefecture, provincial, national)
- University Professor

## Keys stakeholder for our objectives

- Decision-makers → Meetings, Workshop
- Farmers
- Technicians at large scale farms
- Village veterinarians
- Veterinary services staff:
  - National
  - Provincial
  - Prefecture
  - County

TRAINED by Vet Services

FETPV




## Group 1: Provincial level

- **Problems:**
  - Poor knowledge in Epidemiology and outbreak investigation
  - Need of technical skills to collect data
  - Poor knowledge of data analysis
  - Poor feedback of data (to central level and farmer level)
- **Objectives:**
  - Improve knowledge in Epi and outbreak investigation
- **Activities:**
  - Enhancing human resources and funding
  - Training on outbreak investigation
  - Financial support
  - Establish a good feedback

## Group 1: Provincial level

- **Problems:**
  - Poor knowledge in Epidemiology and outbreak investigation
  - Need of technical skills to collect data
  - Poor knowledge of data analysis
  - Poor feedback of data (to central level and farmer level)
- **Objectives:**
  - Improve knowledge in Epi and outbreak investigation
- **Activities:**
  - Collect accurate data about outbreak
  - Collect specimen
  - Analyse the data
  - (…)

## Group 2: County level

- **Problems:**
  - Lack of good investigation forms
  - Heterogeneity in the staff capacity level
  - No fixed position or known duty sheet
  - Poor cooperation of farmers
- **Objectives:**
  - Training in:
    - Design of forms
    - Sampling
    - Specimens collection
    - How to train farmers or VV
    - Good public awareness skills
    - reporting
- **Activities:**
  - Epi training
  - Training in how to train trainers
  - Increasing communication with farmers

## Group 2: County level

- **Problems:**
  - Lack of good investigation forms
  - Heterogeneity in the staff capacity level
  - No fixed position or known duty sheet
  - Poor cooperation of farmers
- **Activities:**
  - Collect accurate data about outbreak
  - Collect specimen
  - Know his duty sheet
  - Build relationship with farmers
  - Organise farmers awareness meeting
  - (…)

## Group 3: Village Vet

- **Problems:**
  - Low professional level
  - Lack of training opportunities
  - Need upgrading
  - Don't report immediately in case of disease outbreak because does not recognise the signs of disease
- **Objectives & activities:**
  - Keep a record of animal movement, case of disease and vaccination
  - Should record crude data
  - Should give early warning in case of emergency
  - Collect specimen
  - Store specimen in good condition
  - Transport specimen to lab
  - Collect accurate data
  - Know the different clinical signes of diseases

## Group 3: Village Vet

- **Problems:**
  - Low professional level
  - Lack of training opportunities
  - Need upgrading
  - Don't report immediately in case of disease outbreak because does not recognise the signs of disease
- **Objectives & activities:**
  - Keep a record of animal movement, case of disease and vaccination
  - Should record crude data
  - Should give early warning in case of emergency
  - To be training on specimens collection, storage and transport
  - To be trained on how to collect data

## GROUP Work Restitution

DAY 2

## Group 1: Provincial veterinarian

- **Collecting samples:**
  - Train county and village veterinarian on specimen collection
- **Laboratory diagnosis:**
  - Train laboratory technicians
- **Data analysis:**
  - Know statistical methods
  - Know software
- **Data reporting**
  - Report to headquarters
  - Feedback to county and village level

## Provincial veterinarian

Roles
Competencies

Communication activities
- To produce feedback on epidemiological activities to stakeholders
- To build stakeholders network to involve them in animal diseases surveillance
- To develop relationship with public health sector

Training activities
- To train veterinarian at prefecture and county level on outbreak investigation
- To train laboratory staff on new techniques

Epidemiological activities
- To set up epidemiological data collection system (market, slaughter house, vaccination…) in order to build epidemiological indicators
- To implement outbreak investigation
- To analyse data in order to follow disease situation in his area
- To report to head office data in standardized way and on time.

## Group 2: County veterinarian

- Collection of data:
  - Knowledge about epidemiology and outbreak investigation
  - Fill the form
  - Recognise disease and make clinical diagnosis
  - Communication with farmers
  - Train farmers and village veterinarians to recognise diseases
- Samples:
  - To recognize the disease
  - Label the specimens
  - Storage and transport
  - Fill the specimen form
- Train staff:
  - To train lab staff to new techniques
  - To train the staff to collect and analyse the data
- Good relation with farmers:
  - Communication skills
  - To train farm technicians about basic epidemiology
  - To provide services to farms (husbandry, nutrition…)
- Organising meeting:
  - Communication
  - Animation
  - Collection of information

## County veterinarian

Roles
Competencies

Communication activities
- To organise farmers meetings
- To build stakeholders network to involve them in animal diseases surveillance

Training activities
- To train village veterinarian to…?
- To train larges farmers to…?
- To train lab staff to new techniques
- To train the staff to collect and analyse the data

Epidemiological activities
- To implement routine surveillance activities according to the program
- To implement outbreak investigation (disease diagnosis, filling of forms, accurate specimens…)
- To report to head office data in standardized way and on time.

## Group 3: Village veterinarian

- To collect crude data:
  - Record of vaccination
  - Fill survey forms
- Early warning:
  - To recognize the suspected signs
  - To do the first treatment
- Samples:
  - To collect sample and to store them in a good condition
  - To know which samples according to which disease
  - To label them in a correct manner
- Data reporting
  - Report to headquarters

## Village veterinarian

Roles
Competencies

Epidemiological activities

- To record crude data (vaccination, animal movement…)
- To report to county level in standardized way and on time.
- To declare animal disease outbreak on time and take first action (clinical signs)
- To collect accurate specimen (storage, shipment…)
- To give feedback to farmers

## Question time 2

Day 3

## Which communication skills you need to conduct an outbreak investigation?

1. identify who have a good relation with the farmer to come with him
2. enhance social event (eat- drink) – attitude how to behave
3. knowing the relationship of farmers with authorities to include them or not
4. adjust your attitude: not too serious, do not threat the famer (build confidence with farmer)
5. explain the importance to report the situation

TRAINING
First part on how to organise a meeting (who to invite…) – 1&3
Second part on how to behave – 2&4
Third part on technical domain – 5

## Brainstorming 2

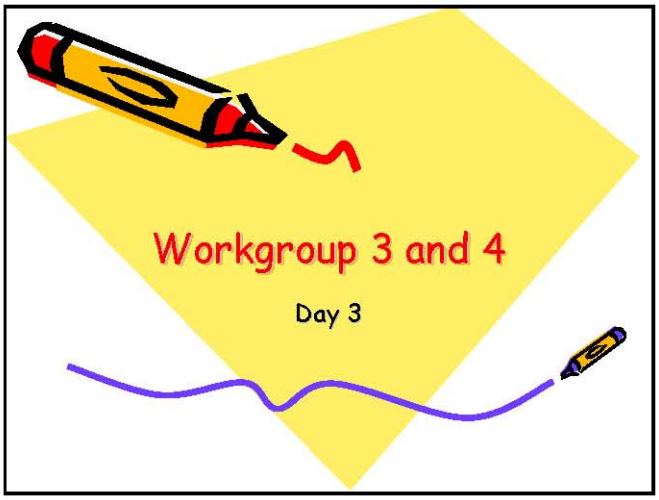
Day 3

**Specificities**

- More experienced
- Subjective : not easy to change their way of thinking
- Good at expression
- More mature in psychology
- Hard worker – will to overcome difficulties
- Good judgment
- Too practical
- Think about their own advantages

**Training program**

- Clear objectives
- According to real needs
- Make them feeling like young again
- Training period shouldn't be too long
- Respect their opinions
- You need to satisfy their needs
- More practical cases
- Participatory techniques




## Provincial veterinarian

**To be able to organise training of county veterinarians**

- To develop training plan (when-where, define objectives)
- To organise training
- To inform participants
- To achieve good results
  - to communicate
  - to animate the training
  - to use different pedagogic tools
  - to apply theoretical in practice
- To evaluate the training in order to improve their work

## Provincial veterinarian

Skills

Pedagogic objectives

**To be able to organise training of county veterinarians**

To be able…

- To develop training plan (when-where-how, define the pedagogic objectives)
- To inform participants
- To organise training
- To communicate with the county vet
- To animate the training
- To use different pedagogic tools
- To put theory in practice
- To evaluate the training in order to improve their work

## Provincial veterinarian

**To be able to organise training of county veterinarians**

Location: Hotel in Kunming
Duration: 5 days
Trainers: CIRAD – CAHEC
Participants: 2 staff / province – 62 persons
Contents:

- Organisation of meeting
- Communication skills
- Use of different pedagogic tools
- How to evaluate
- Evaluation of trainers

Responsabilities: CAHEC, Yunnan CDC
Fund: FAO

## County veterinarian

**To be able to implement outbreak investigation**

To be able…

- Knowledge about epidemiology
- Knowledge on mortality and fatality rate
- Procedure to follow
- To fill the investigation forms
- To describe the clinical
- To communicate to farmers
- To collect accurate specimens
- To write final report

## County veterinarian

Skills

Pedagogic objectives

To be able to implement outbreak investigation

To be able…

- To explain basic concept in epidemiology
- To calculate epidemiological indicators (prevalence, incidence, mortality rate…)
- To describe the different steps of outbreak investigation
- To follow the procedure
- To fill the investigation forms
- To recognise the main diseases, describe the clinical signs and make a diagnosis
- To communicate to farmers
- To collect accurate specimens, with correct label and correct storage
- To send the forms and the specimens on time and to the responsible persons
- To write final report

## County veterinarian

**To be able to implement outbreak investigation**

Location: Hotel in Kunming
Duration: 5 days
Participants: 30 County Vet
Contents:

1. To explain basic concept in epidemiology – lecture / discussion
2. To calculate epidemiological indicators – lecture / RANEMA
3. To describe the different steps of outbreak investigation – lecture / discussion
4. To follow the procedure – simulation/real life/practice
5. To fill the investigation forms – lecture / discussion/ simulation/real life/practice
6. To recognise the main diseases, describe the clinical signs and make a diagnosis – lecture / case investigation
7. To communicate to farmers – role playing
8. To calculate accurate samples size – lecture / RANEMA
9. To send the forms and the specimens on time and to the responsible persons – lecture / discussion
10. To write final report – lecture / exercises

Trainers: CIRAD – CAHEC
Responsabilities:
CAHEC, Yunnan CDC
Fund: FAO

## Village veterinarian

**To be able to report animal diseases**

- To recognise the disease and epidemiological context
- To describe the clinical signs
- To collect accurate data (no forms: date, breed, place, species, number sick, movement, environment…)
- To write a report to headquarter
- How to treat
  - Isolate the sick
  - Take control measure
  - Treatment

## Village veterinarian

Skills
Pedagogic objectives

**To be able to report animal diseases**

To be able…

- To recognise the disease and epidemiological context
- To describe the clinical signs and make diagnosis
- To collect accurate data (no forms: date, breed, place, species, number sick, movement, environment…)
- To apply the procedure in case of emergency (early warning)
- To write a report on time to headquarter
- To implement first control procedure (treatment, isolation…)

## Village veterinarian

**To be able to report animal diseases**

Location: Hotel in Kunming
Duration: 3 days
Participants: 20 Village Vet
Contents:

1. Animal diseases –
   - complete learning material
   - Lecture for differential diagnosis
   - Showing pictures of clinical signs
   - Question time
   - Visit on the spot
2. Collection of data –
   - Brainstorming (what kind of data to be collected)
   - Summary by trainers
   - Description of cases
   - Simulation
3. Reporting –
   - Question time
   - Discussion on what is a good report
   - Lecture
   - Simulation
3. Evaluation –
   - Of trainees
   - Of trainers

Trainers: CIRAD – CAHEC
Responsabilities:
CAHEC, Yunnan CDC
Fund: FAO

## Brainstorming 3

Day 3

## Indicators of training impacts

**Provincial Vet**

- If the PV has developed training plans
- Level of satisfaction of county vet trained
- Level of performance of the county in the field on which he has been trained
- Number of CV trained
- Number of training organised

**County Vet**

- How many correct forms have been sent
- How many qualified samples have been sent
- How many reports of outbreak investigations have been sent
- Delay of reporting

**Village Vet**

- Reporting in time
- Is the data reported were accurate